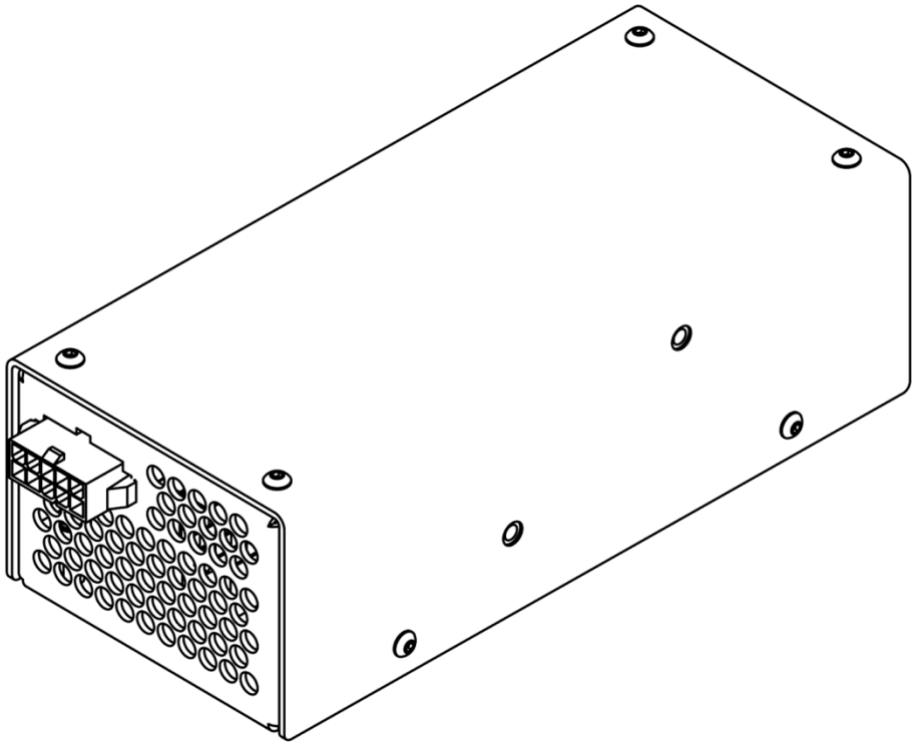
SCA-3008 simmer module

User manual



Warning! This equipment can be dangerous.
Please read the entire user manual carefully before operating the product.

Table of contents

Overview / Appearance

The SCA-3008 simmer supply strikes and maintains a low-current discharge in a flashlamp to increase the lamp's lifetime and operational stability.

Input voltage – 200-240VAC, max. output voltage – up to 300V, output current – up to 800mA (model dependent and factory preset, see also *How to order?* section), max. output power – up to 100W. The SCA-3008 high-power output and output voltage capabilities enable it to drive a long flashlamp or two standard flashlamps connected in series.

The SCA-3008 can be used in laser systems with either series or external triggering.

Cooling

The simmer module has a built-in fan for active cooling, so no additional cooling is required.

Contents of delivery

By default, the delivery package contains the following parts:

- SCA-3008 simmer module – 1pc
- INTERFACE cable (50cm length) – 1pc

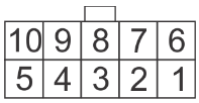
The trigger transformer is not included with the standard delivery and must be purchased separately. Customized delivery content is available upon request.

Connections, signals, signal descriptions

AC INPUT:

Blue wires (2pcs) – 200-240VAC, 50/60Hz, 1ph input

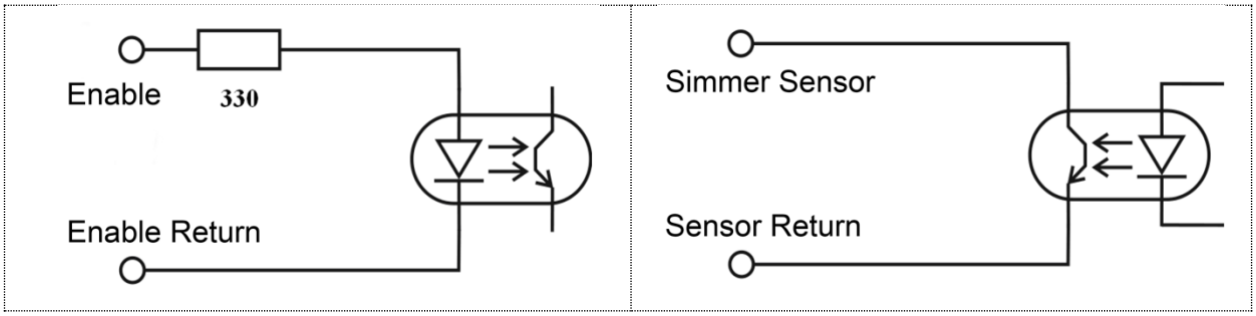
INTERFACE: Molex Mini-Fit 39-01-2101



PIN (color)	DESIGNATION	DESCRIPTION
1, 2	**N/C**	-
3 (red wire with blue mark)	**HV Trigger**	Positive of trigger transformer primary winding.
4 (violet)	**Sensor Return**	Return of the *Simmer Sensor* signal.
5 (yellow)	**Simmer Sensor**	The *Simmer Sensor* circuit is closed while simmer current flows through the flashlamp and is open while simmer current is absent.
6 (orange)	**Enable**	Once a +5V TTL signal is applied to this pin, the simmer supply will attempt to strike and maintain a low-current discharge (simmer) in the flashlamp. If the flashlamp triggering fails, the simmer supply module will attempt to trigger it again with approximately 3Hz repetition rate. If a simmer discharge is not established in approximately 4 seconds, the simmer board will stop operations. To continue, it must be disabled and then enabled again. After successful triggering the simmer supply will maintain flashlamp current till 5V are removed from *PIN6*.

7 (green/yellow)	**Case Ground**	Connected to the external enclosure of simmer module.
8 (blue)	**HV Return**	Flashlamp cathode (-), Negative of trigger transformer primary winding.
9 (white)	**Enable Return**	Return of the *Enable* signal.
10 (red)	**HV**	Flashlamp anode (+).

INTERFACE CIRCUITS:



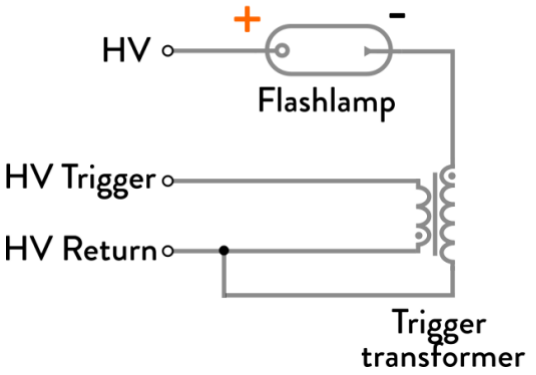
GROUNDING:

Grounding policy

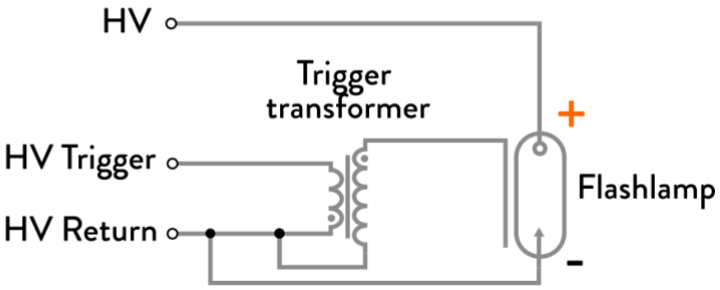
HV Return is not connected to the simmer module chassis.
In the case of need the customer can make this connection themselves.
Other grounding policies are available on request.

Triggering

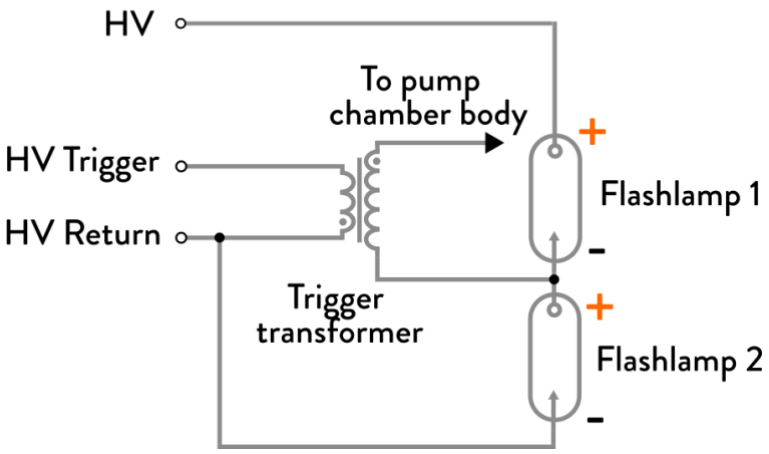
SERIES TRIGGERING



EXTERNAL TRIGGERING



EXTERNAL TRIGGERING (TWO FLASHLAMPS)



Safety

Warning! This equipment produces high voltages that can be very dangerous. Be careful around the device.

- Disconnect the module from the mains before making or changing electrical or mechanical connections.
- The SCA-3008 is a built-in module. It is the user's responsibility to ensure that personnel are protected from accidentally coming into contact with the SCA-3008. **Accidental contact could be fatal!**
- The module must be protectively grounded at all times when in use.

Operations

1. Connect the trigger transformer and the flashlamp to the SCA-3008 simmer supply.
2. *Disable* the simmer supply (*PIN6* of *INTERFACE*).
3. Apply *230VAC* power to the module.
4. *Enable* the simmer supply (set +5V TTL on *PIN6* of *INTERFACE*).
5. Wait 5-10 seconds for the *Simmer Sensor.* If it fails shut down your system.

To power down the SCA-3008

1. Remove *230VAC* power from the module or *DISABLE* it.

Faults / Protections

The following protections are available:

1. From short circuit at the output – the simmer module considers a short circuit at the output to be a normal operating condition.
2. From open circuit (trigger timeout) – if a simmer discharge is not established in approx. 4s, the simmer board stops operations; to continue it must be disabled and then enabled again.

Warning

The simmer module is not protected from reverse-polarity voltage at the output, which may occur due to a transient process after the flash. Oscillation is caused by the inductance of the wires and the flashlamp itself and cannot be fully eliminated. To suppress reverse-polarity pulses, recuperative diodes must be included in your discharge circuit schematics. Please consult us if you have further questions.

Specifications

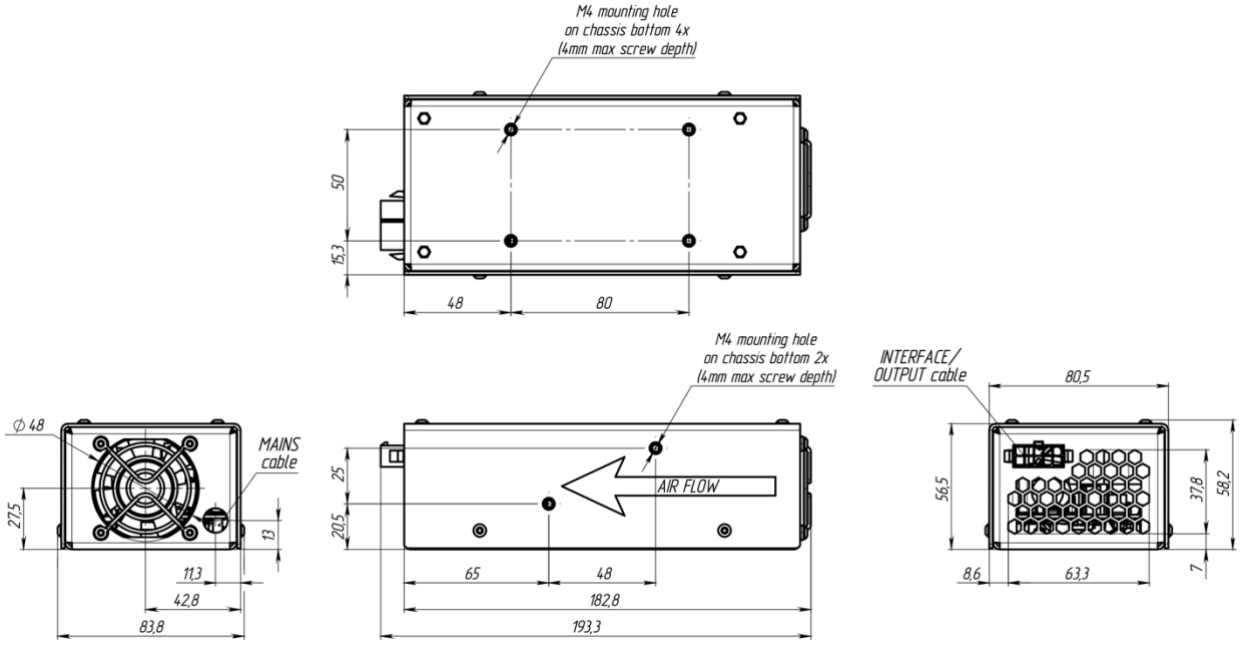
ELECTRICAL:

INPUT	
Input voltage	200-240VAC, 50/60Hz, 1ph
Maximum input current	0.5A
Fuse	1A
SIMMER PARAMETERS	
Output current (*)	Model dependent and factory preset, see also *How to order?* section
Output voltage	Is set automatically in accordance with current set point and V/A curve of your flashlamp
Max. output voltage (*)	Model dependent, 200-300V
Max. output power (*)	~100W
Open circuit voltage	1500V
(*) The performance of the simmer module is limited by its maximum output current, maximum output voltage, or maximum output power. In other words, the maximum output voltage and maximum output current cannot be achieved simultaneously due to the maximum output power limitation.	
TRIGGERING PARAMETERS	
Trigger voltage	1kV (other on request)
Trigger pulse energy	~160mJ @ 1kV
Restrike rate	A few Hertz (automatically adjusted)
Protections	- Short circuit at the output - Open circuit (trigger timeout)
Cooling	Forced-air cooling with a built-in fan, no additional cooling is required
Environment:	
Operation temperature	0 … +40 °C
Storage temperature	-20 … +60 °C
Humidity	<90%, non-condensing

MECHANICAL:

Size (LxWxH)	See dimensional drawings below
Weight	<0.5kg

Dimensional drawing



How to order?

By default, we offer a few standardized versions as below:

P/N (version)	Description	Comments
SCA-3008 or SCA-3008-01	Standard (high-current) version: - ~300-800mA simmer current selection range - 500mA simmer current by default (factory preset, other set points on request) - 1000V trigger voltage (other on request)	Fits well for most of the customers
SCA-3008-02	Low-current version: - ~150-400mA simmer current selection range - 200mA simmer current by default (factory preset, other set points on request) - 1000V trigger voltage (other on request)	For small flashlamps

Besides, the following options are available upon request:

- Simmer current preset (any within simmer current selection range)
- Trigger voltage (selectable in 350-1000V range, other on request)
- Modified cables and connectors